

FILMO TOPICS

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Summer

1938

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Below—Douglas Fairbanks, Jr., Danielle Darrieux, and Mischa Auer, in the current New Universal Pictures' production, *The Rage of Paris*.



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Filmo Topics

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SUMMER 1938

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E. A. REEVE, *Editor*

R. H. UNSELD, *Associate Editor*

Photographs and accounts of cinematographic activities of general news or instructional interest will be welcomed by the editors, as will suggestions as to subjects which you would like to see discussed in future issues of Filmo Topics.

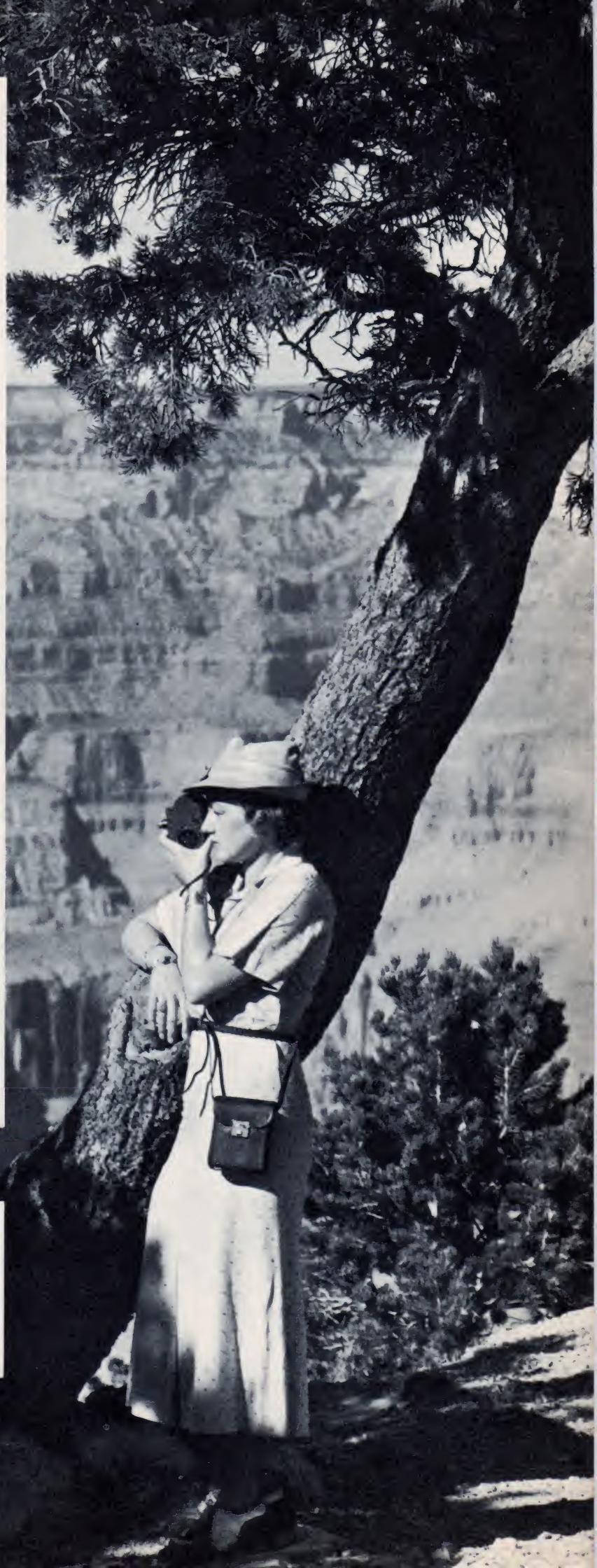
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The cover illustration, and the photograph on this page, are by H. Armstrong Roberts, Philadelphia

GOOD NEWS for 16 mm. movie makers
is the announcement on the outside back
cover of the **NEW FILMO 141 . . .**
versatile magazine-loading camera





H. Armstrong Roberts

Two crisp, red tulips filling the screen in Kodachrome — a delight to any movie maker

ONE of the most interesting fields of cinematography is seldom explored by the average amateur, either because he never has thought of it or because he considers such pictures beyond the scope of his equipment. We refer to the extreme close-up, the picture wherein the entire screen is filled by a single butterfly, a solemn toad, or a spider's gossamer web. We assure all owners of Filmo 8 and 16 mm. cameras that, regardless of the model of the camera, such movies are easy to make, and require, at the most, only inexpensive supplementary lenses which can be obtained locally at any optical supply store.

Subjects for this type of photography are all about us now, and many of them are beautiful indeed when filmed in natural colors. A single scarlet zinnia, for example, or the outspread wings of a black and yellow swallow-tail butterfly, would make a grand picture in Kodachrome. For real action, albeit a bit shuddery, you could film a spider web and the tragedy which ensues when you drop a sacrificial ant on the web just before pressing the starting button of the camera. Pictures of this sort are truly professional, and will bring gasps of amazement from your audience, those guttural, inarticulate sounds of approbation that are music to the ears of all of us movie makers.

There are two simple ways to make close-ups. First, take full advantage of the powers of such telephoto lenses as you may have. Second, owning no telephoto lenses, you may use the simple, inexpensive diopter lenses that are available at any optician's.

Using Telephoto Lenses

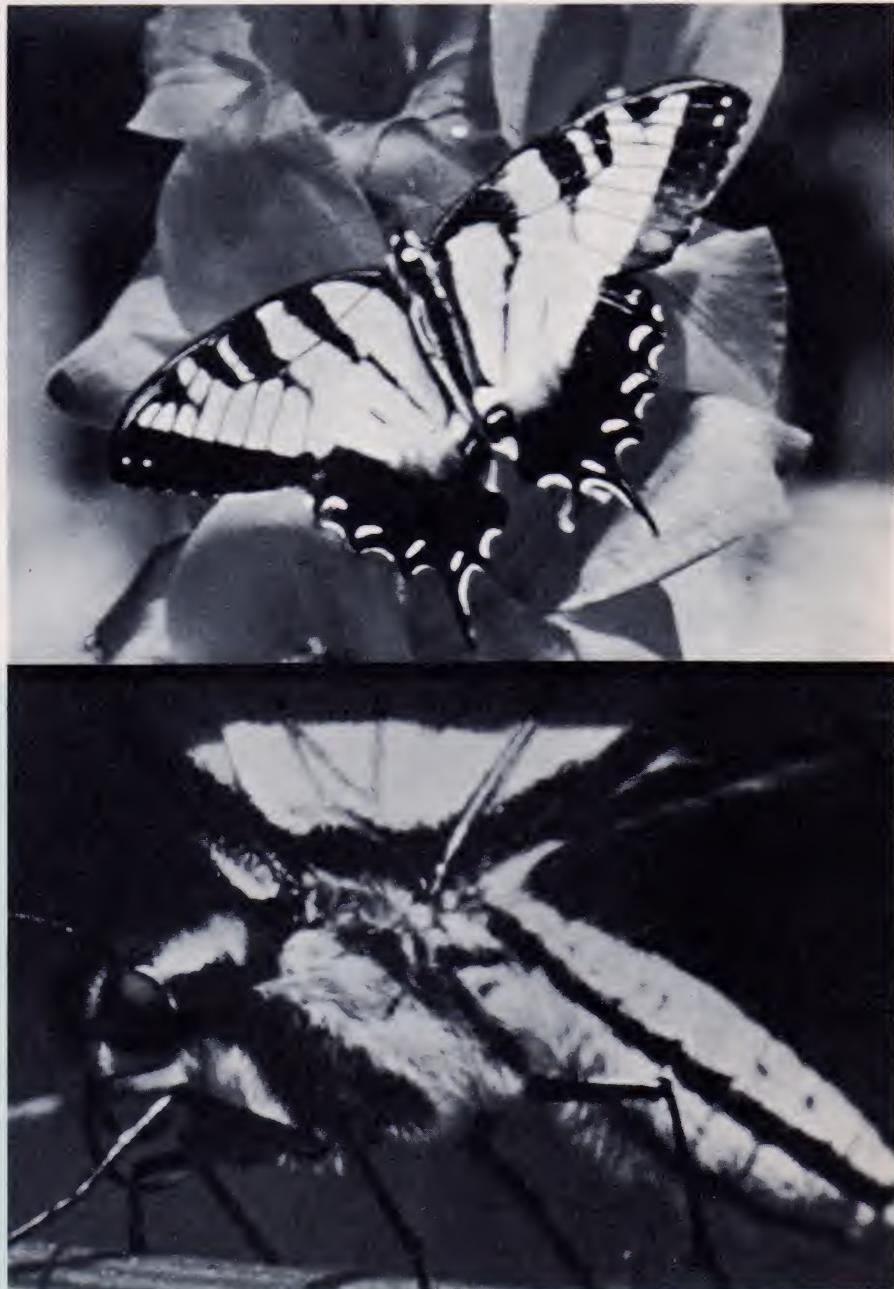
Most of us are prone to use telephoto lenses principally for long shots, to enlarge some detail of a distant scene. But your telephoto lens will do a lot more for you if you will only give it the chance. Note the shortest distance upon which your particular lens will focus, place some object at just that distance from the film plane, and

MAKING BIG PICTURES

R. H. UNSEL

when you look through the viewfinder you will discover a very small field indeed. For example, a 4-inch lens on a 16 mm. camera covers a field only $4\frac{1}{8}$ inches wide at 4 feet from the camera, and a $1\frac{1}{2}$ -inch lens on the Filmo Eight takes in a field 8 inches wide at 5 feet. Those $4\frac{1}{8}$ -inch and 8-inch fields are, of course, enlarged to fill the same size frame as normal pictures, and consequently vast enlargement on the screen is the result.

The closer you can focus a telephoto lens, the smaller the field that can be filmed with that lens. It should be noted that at these abnormally short distances, the viewfinder will not show the *exact* field included by the lens. The viewfinder will show a slightly larger rectangle than you will actually photograph on the film, but if you will allow a very little bit for each dimension, it will do very well. The formula given later in this article will help you to determine the exact field, or upon request Bell & Howell will be glad to send a table



Photos by the author

Two studies of a tiger swallow-tail butterfly enlarged from 16 mm. Kodachrome. Above: the black-and-yellow insect rests on a bright, salmon-colored gladiolus. Below: color contrast is maintained in this ultra close-up of the butterfly's body, for he rests on a piece of green "snake grass." Note the fur covering the body

of Small Subjects

of picture areas included by various lenses at different distances. (Or see *Filmo Topics* for Christmas, 1937, page 9.)

Exposure is determined in the usual manner, but remember that close-ups usually require a wider diaphragm stop than longer shots made in the same light. Do not attempt to photograph objects that are very deep, for the depth of field is quite limited at these short distances; measurements should be made from the film plane to that part of the subject which is most important. Remember too, the smaller the diaphragm stop, the greater the depth of field. Also, allowance must be made for the offset between camera lens and viewfinder lens, and a full explanation of this is given later in this article under the paragraph headed "Parallax."

Using Fixed Focus Lenses

But what of us who have no telephoto lenses, we who use a standard universal focus lens for all of our work? How are we to focus sharply on these short distances?

As a universal focus lens is stopped down, you may get closer and closer to the subject and still be in sharp focus. For example, at F 16 the 1-inch universal focus lens on the 16 mm. camera will bring into focus all subjects 5 feet 3 inches and more from the camera. At that short distance, the field would be about two feet wide. However, it takes a lot of light to make a close-up at F 16, and anyway, you might want a smaller field. The answer, then, is a simple supplementary lens placed in front of the regular camera lens.

These lenses are not costly, and they are

Back-lighting offers interesting possibilities in this type of movie making. The sun was shining toward the lens, but not directly into it, when this 16 mm. picture of a seed head was made. Each fuzzy fibre of the winged seeds caught the light

Photo by the author



usually obtainable in three types, plano-convex, double convex, and concavo-convex, the first two types, perhaps, being preferable.



Fig. A



Fig. B



Fig. C

Plano-convex Double convex Concavo-convex

Only one supplementary lens is used; it should be of a diameter not less than that of the outer end of the camera lens sunshade. If the supplementary lens is larger than the sunshade, no harm will result, but it is well to keep somewhere near that size. The lens should be mounted as close to the sunshade as possible, with the flat side of

Another attractive example of back-lighting in extreme close-ups. The softness of the pussy willows is accentuated thereby. This photograph indicates clearly that the most commonplace objects may be good subjects for such close-ups

H. Armstrong Roberts



This innocent little frog becomes a veritable monster when the 16 mm. film from which this picture is enlarged is thrown on a four-foot screen. The vibrations of his throat as the frog breathes are plainly visible in the movie

Photo by the author

Fig. A or the concave side of Fig. C toward the camera. In order that no extraneous light may enter the camera lens from between its sunshade and the supplementary lens, it would be well to provide some sort of a circular shield at this point, such as a short section of cardboard tube. This may be especially important if the supplementary lens is larger in diameter than the sunshade, for the extending rim of glass might catch a stray light ray.

These lenses are available in different focal lengths which are usually expressed in the opticians' term "diopters," and in this case focal length simply means the distance from the supplementary lens to the plane upon which that lens will focus. A one-diopter lens, when placed immediately in front of any universal focus lens, will focus that lens accurately upon an object exactly one meter (39.37 inches) *from the supplementary lens*. (Note that the measuring point is different in this case. When supplementary lenses are *not* used, the measurement is taken from the *film plane* to the subject, as described previously.) A lens of two diopters, used in the same manner, focuses on an object one-half meter (19.68 inches) away, and one of three diopters on an object one-third meter (13.12 inches) distant. In other words, simply divide 39.37 inches by the diopter number of your supplementary lens, and you will have its focal length.

The viewfinder of your camera will help determine the approximate field included by the lens, but here again, working at these unusually close distances, it will not outline the exact field even though you correct for parallax. The question here is one of area covered, not the off-set between camera lens and viewfinder lens. Although the viewfinder will show you a very slightly larger field than you will actually photograph, there is a simple formula which will assist you in the preliminary determination of the exact size of the field, as well as the distance between camera and subject. It will also help you determine just what sup-

Continued on page 10



H. Armstrong Roberts

By the camp-fire's rosy glow — one of the many variations of the set-up for camp-fire movie making illustrated in the diagram below. All the elements are here — the subjects on the far side of the fire, smoke blowing out of the picture, flare near the fire, and the seated figure on the right acting as a light shield. Note the pleasing silhouettes, and the interesting outline-lighting of the figure at the left

Take Movies at Night . . . OUT OF DOORS

R. H. UNSELD

HUNDREDS of vacationists will be sitting around the camp-fire tonight, singing and enjoying the spirit of good fellowship that seems always to be born of the open flame, and while there are sure to be dozens of movie makers among them, I'll wager that not one per cent are aware that they are letting most unusual filming opportunities go all unnoticed. Whether it be on the trail in the mountains, at a week-end beach party, or just a marshmallow roast "out at the lake," the camp-fire and the circle of friendly faces in the firelight can be recorded easily with your own movie camera, and since these shots are always spectacular in their "black-out" effects, they lend a new importance and a professional tone to your movies.

It is not even necessary to use a high speed lens, for the photo flare furnishes such bright light that even an F 3.5 lens may have to be stopped down. A flare is simply a pointed stick capped with a cartridge containing a chemical which burns with an intense white light for a specified period. Flares are safe, easy to use, and make these effective movies possible.

Of course, any night activity out of doors may be illuminated by flares and subsequently photographed, but we dwell here on the camp-fire idea because of its universal appeal and because almost every movie maker can find such an opportunity somewhere this summer.

As you prepare to photograph any flare-illuminated scene, note carefully the direction of the wind. This is important, for the flare will emit a cloud of dense smoke, and you must be sure that it will not blow between the camera and the subject. If there is no wind, the smoke will go straight upward.

The accompanying diagram illustrates the set-up for an effective camp-fire scene. Note that since the camp-fire and flare are down wind in the lower left hand corner of the field, the smoke is blown out of the picture almost immediately. Stick the flare in the ground as close to the fire as you comfortably can, without danger of setting the flare afire too soon. Do not set it too high, for it will burn something like a Fourth of July "flower pot," and you don't want it to flame up too high. The camera lens

must be shielded from the flare, so build up a light shield back of the flare, at least a foot and a half higher than the fuse. Put this wood screen together of logs or sticks so that it looks like the jumble of timbers actually burning in the camp-fire, but don't set it ablaze.

Now you will want to determine your field, but since you will find the firelight too dim to enable you to see much of anything in the viewfinder, get two people with matches or flashlights to help you locate the area your viewfinder includes. Wind the camera fully and make all camera and lens adjustments. Do these things before you light the flare, for once it is lighted, it doesn't last long. With everything all set, light the flare, wait for the preliminary yellow flame to burn through to the white light, and then press the starting button. A half-minute flare will give you two or three shots with a second or two in between to change your field, but you won't have time to take a meter reading. A one-minute flare will give you time to do this if you hurry. Use daylight emulsion speed ratings, and if Kodachrome is to be used, it should be the regular type, not Type A.

So many variables exist in photography of this nature that no definite exposure guide can be given, but in general, if a single flare is used without a reflector and is ten feet from the subject, F 5.6 with super-pan film, or F 4 with panchromatic, should be approximately correct.

This camp-fire set-up will show the group seated about the fire, and if the flare is well hidden, the light will appear to be coming from the camp-fire itself. The flickering flames should be visible, of course, as they are not bright enough to fog the film and they will complete the illusion that you are filming entirely by firelight.

Continued on page 10

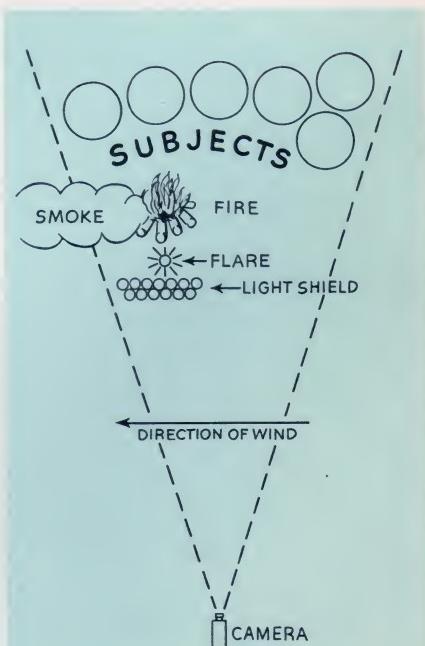


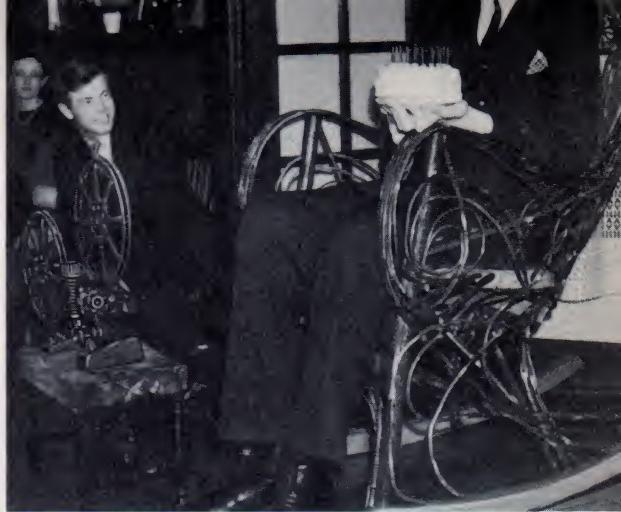
Diagram showing positions of camera and flare relative to camp-fire, subjects, and direction of wind

FILMO NEWS

Editorial



Mr. and Mrs. Carveth Wells, photographed when they visited the Bell & Howell factory recently, just after completing a 16 mm. color film for the National Geographic Society with a Filmo Camera. One of the most popular features in the Filmosound Library is "World Down Under," a splendid travelog on Australia photographed and narrated by Mr. Wells



Pictures, Inc.

Robert Wadlow, young eight and one-half foot giant of Alton, Illinois, enjoying the twenty-candle-power cake his mother made for his birthday party. Guests were entertained by movies projected by the Filmo 129 Projector



Another travel-lecturer is Russell Wright, who selects timely subjects and gives motion picture lectures here at home concerning events which are still happening abroad. Mr. Wright is shown with his Filmo 70-DA as he filmed a trio of workers at the Sandvik Steel Works, in Sweden



Left — George Burns and Gracie Allen, starred in "College Swing," await with interest the beginning of a 16 mm. sound film about to be shown on the Filmosound 138 Projector

© Paramount Pictures, Inc.

Taking Color Movies OF MARINE LIFE

CARL S. MINER

Photographs by the author

A WINTER retreat on an island off the coast of Florida is a grand base of operations for the study of marine life, and since Mrs. Miner and I are both interested in this activity as a hobby, we take full advantage of our island home. For five years we have spent our winter vacations in following the elusive sea horse, et al. At first we simply collected specimens. Then we took to still photography to record our work, and now we are making color movies with a Filmo Double 8.

It did not take us long to discover that a dead animal is not very fascinating at best. Consequently early in our collecting careers we found it advantageous to learn how to keep the animals alive in aquariums for considerable periods of time. This is not nearly so difficult as it may sound. If one is willing and able to provide plenty of fresh salt water, almost any small native of the ocean will be reasonably happy in captivity for a few days, and many will carry on their normal lives for months in small but properly managed aquariums. Dobbin, one of our early sea horses, lived with us for five months, during which time he (yes, father does the work) was delivered of a batch of 55 healthy little colts, of which the majority were robust 3-month-olds at the time we finally turned them loose, along with Dobbin himself, when we left for the north in April.

Color movies of the inhabitants of our aquariums, picturing such subjects as the table manners of sea horses, starfish, sea anemones and the like, are uncommon enough to have a high degree of interest for the average home audience. We can now show how a starfish turns over, how a new-born sea horse snaps up tiny shrimps, how baby octopi swim, and how sea anemones catch and devour any living animal that comes within reach of their petal-like tentacles, despite the fact that they look exactly like flowers and not at all like animals.

Still, we know that we've failed to film some of the most interesting events in our aquarium, such as the sea horse births, the hatching of shell fish from the egg cases, the capture of rapidly moving animals by the anemones, and a dozen other interesting and exciting incidents that we have neglected or accidentally missed. There's a vast deal of luck in such matters. We've had day-old sea horses available for the annual Shell Show three years in succession, but have never been able to record the birth mechanism successfully. On the other hand, we've had *Natica carena* ("snail" to most of you) lay her egg case in full view of the camera, and we suspect



On the aquarium floor various mollusks, a starfish, and a sea urchin pursue their slow and deliberate courses

that we have in that film the only record extant of such an event.

For general work we have used the regular $12\frac{1}{2}$ mm. F 2.5 lens on my Filmo 8, but we also have found a telephoto lens extremely useful, not for distance shots but for close-ups. At from two to three feet the resulting magnification makes it possible to get good results on 8 mm. film with such subjects as the baby octopi, which actually are not much larger than grains of rice. However, on these close-up telephoto shots the lens must be set for the exact distance from the animal, and therefore this method is successful only in cases where the animals move relatively short distances during the filming.

In taking aquarium movies we have found that next to lighting, backgrounds are our most difficult factor. The subject of the accompanying circular photograph looks like a beautiful and intricate bit of crochet, but is really a basket starfish, a rare animal, at least on our part of the Florida coast. This specimen was acquired by dredging in about forty feet of water. Since his color is a dark brown, we put him in a shallow, white enamel pan to have his picture taken, but just for luck and because experimentation has become a habit with us, we tried him also on a background of black rubber cloth. We found the graceful waving of his tentacles to be much more beautifully pictured on black than against the white background we had first selected.

The problem of lighting is complex, and only experience can answer all questions.

Horizontal shots toward the side of the aquarium avoid the difficulty with ripples which is encountered when we shoot downward, and the horizontal shots are, on the whole, more satisfactory—especially if one avoids shooting from a position where he superimposes a reflected image of himself and the camera on the objects in the aquarium.

We have tried daylight as well as flood lights (failing in some cases to avoid photographing the reflectors), and in general we have been more successful with daylight. However, we hope eventually to work out some method which will make our picture making wholly independent of the sun, so that if the sea horses and pipefish persist in bringing their children into the world under cover of darkness, we can overcome their native modesty with artificial light and record these interesting events for ourselves and our friends.

This type of movie making is not for the casually-interested. Long hard hours spent waist deep in water, plowing through eel grass with a crab net, are often the price of a single sea horse of the sort shown in the picture. Dozens and dozens of clam shells are picked up and examined on many days in many locations before one is lucky enough to find a mother octopus surrounded by the rice-like eggs that are her pride and joy. Even then you are likely to have the eggs die unhatched despite your best efforts to give them all the luxuries to which they are accustomed.

Basket stars and the lovely fuzzy red

starfish known as "sea spiders" are obtained alive only by dredging in the relatively deep water of the Gulf, which is no child's play even if one hires the most competent and husky guides to do the tugging and hauling. An electric ray is frequently captured only at the cost of a shock which feels very much like the kick of an army mule. No, I do not recommend marine cinematography to all movie enthusiasts indiscriminately, but I feel sure there are some who will get the same thrill that we do in recording accurately the way a scallop swims, how a starfish eats, or how a sea anemone catches its prey. And will your audience love it!

EDITOR'S NOTE: Many Filmo owners who are not able to go out and do their marine collecting first hand, will want to apply Mr. Miner's ideas to photographing the fresh water aquariums that have been so popular the past several years. A tank of tropical fish offers the inland movie maker a splendid opportunity to exercise his ingenuity, and there would seem to be no reason why the private life of the prolific "guppie" would not be just as interesting as Dobbin's foaling. Perhaps you can be there with your movie camera while a male paradise fish builds his amazing nest of bubbles and, later, stands guard beneath the nest, driving off intruders.

FILMS ON MARINE LIFE AVAILABLE

If you are interested in pictures of creatures of the sea but find it impossible to go out and make them yourself, as Mr. Miner describes in the adjacent article, you will be glad to know that the Bell & Howell film library contains a number of one-reel shorts on this fascinating subject.

"Life Under the South Seas" is an Arthur C. Pillsbury film which is of exceptional interest to all ages. Mr. Pillsbury knows his starfish and sea urchins, and he portrays them in close-up action shots, along with sea anemones, barnacles, and other creatures we see very seldom. Much of the picture was made with the time-lapse camera, so although in nature a sea anemone may take ten minutes to extend its petal-like tentacles, you see it unfold like a flower in a few seconds on the screen. This, by the way, is a companion film to

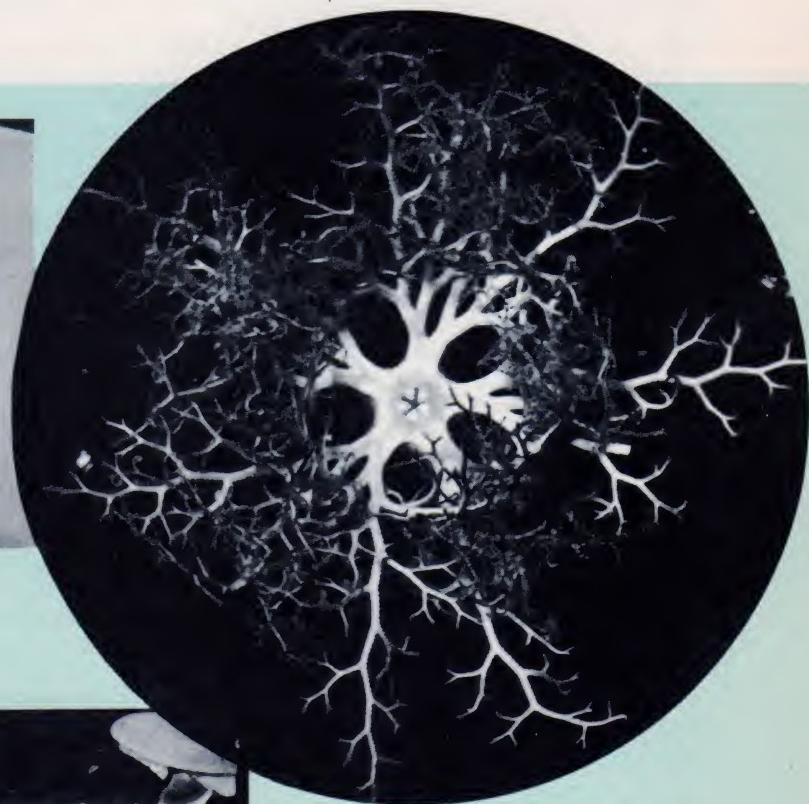
"Life In the South Seas," also by Mr. Pillsbury, a one-reeler devoted to life in Hawaii and Samoa, where the marine film was made. Both are available in sound or silent versions, and they run fifteen minutes each. Other one-reel silent subjects are "Marine Life" and "Dwellers of the Sea."

"Undersea Gardens," a new sound film, made on the ocean's floor off the Bahamas, takes you right down to the fantastic corals, and the odd fish of the tropics swim right up to the lens of the camera. "The Sea" and "zoo Fathoms Deep" are other excellent sound films of marine life.

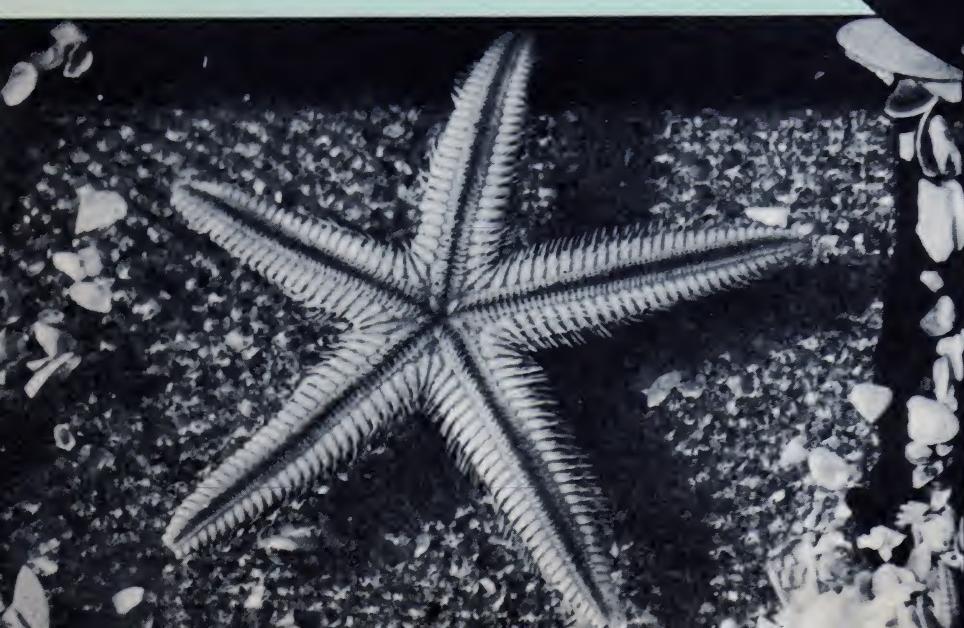
We cannot too highly recommend films of this sort to round out a movie evening at home. The entertainment and instruction values are all out of proportion to the very low rental charges.



The strange little sea horses wrap their prehensile tails about some bit of coral or rock and wait for choice morsels of food to come their way



Because this basket starfish has been placed upon its back, the tentacles are fully extended and are waving constantly in the animal's efforts to right itself



Left—The same starfish as shown in the group on the opposite page, but for this picture he was turned upon his back

Contributors' Page



Figure 1. Lens set at F4, pointer diagonally bisecting the viewfinder objective lens. The pointer is set in this position initially and is returned to the same position as the fade-in is made



Figure 2. Lens rotated to closed position for start of fade-in. The pointer is still in the same position relative to the lens barrel as it was in Figure 1

Double Eight Fade-Ins Without a Tripod

ANYONE, of course, can make fade-ins with the Double Eight by starting the camera and then opening the lens from the closed position to the correct F stop for the lighting conditions of the moment. However, the camera must be on a tripod, since the operator has to be at the side of the lens in order to tell when the widening diaphragm has reached the correct F stop.

I wanted to be able to fade in while using the camera in my hands, for I don't always have time to set up a tripod. Accordingly, I fashioned a little device of stiff wire which snaps over the lens and indicates, in the viewfinder, when I have turned the lens collar to the right point. The illustrations are almost self-explanatory.

Suppose, for example, that you want to fade into a scene that is to be shot at F 4. Set the lens at that stop and without changing the setting, revolve the wire indicator around the lens barrel until the pointer is directly in front of the upper left-hand corner of the viewfinder, as you face the lens (see Figure 1). Then grasp the knurled lens rim and the wire ring and rotate them as a unit to the closed position of the lens, as in Figure 2. You are now ready to shoot.

Hold the camera in the usual manner, press the starting button, and as you look through the viewfinder, turn the lens collar

and the indicator slowly until the wire pointer points exactly to what is now the upper right-hand corner of the viewfinder. The pointer is perfectly visible as you make the picture, and you will stop in the same position as that in which the lens was originally set in Figure 1—in this instance at F 4. Continue the scene for the required footage.

The wire must be stiff, yet springy enough to snap on the lens barrel with reasonable tightness. It must be movable on the lens barrel to different diaphragm settings, yet it must be tight enough to turn with the lens barrel. The ring of the indicator should be next to the knurled lens rim, so that they both may be grasped firmly between the thumb and forefinger as the collar is rotated. I found it advisable to off-set the pointer a little, toward the camera, so that the plane of its movement would be as near the viewfinder as possible.

In fade-outs this device is, of course, not needed, because at the end of a given scene the lens is simply rotated to the closed position.

H. EPSTEIN, D.D.S., CHICAGO, ILLINOIS

No More Lost Lens Caps

After losing one lens cap after another, I decided to call a halt to this continual replacement by anchoring my current cap to the camera. I made a knot at one end of a short piece of silk fishline, passed the line through the tongue of the cap, and by

means of a slip-knot fastened the other end of the line to the lens barrel. Result—lens cap always where I want it when I need it.

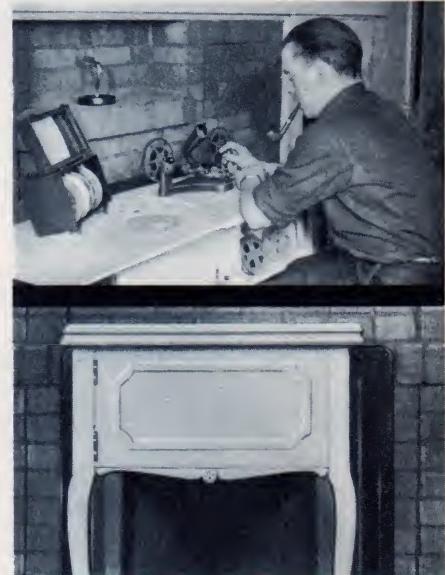
LAURENCE B. BLANKMAN,
MIAMI, FLORIDA

Your Coat a Changing-Bag

For many years I carried a changing-bag when traveling with my movie camera, often finding it very useful in changing from black-and-white film to color in the middle of a roll, rewinding for double exposures on the spot, and for various other purposes. However, my equipment finally reached the stage where something had to be done to reduce bulk and weight.

Now I no longer carry the bag, but instead I always take seven or eight stout, good-sized safety pins with me. Whenever I want a little darkroom, I take off my coat, button it, and fold over the bottom, pinning it securely. I put the camera inside through the collar, pin the lapels tightly together, and when I slip my hands inside through the sleeves, I have a very fine changing bag. If I happen to be wearing a light summer coat I place several newspapers upon it, or I borrow a coat from a bystander.

JOSEPH B. DELEE, M.D.,
CHICAGO, ILLINOIS



A. F. MOOSMAN, Chicago, found an unused sewing-machine cabinet in his attic and decided to put it to work again. He removed the old dark finish, enameled the cabinet ivory, and installed a Filmo 8 mm. Editor on the center drop-leaf panel where the sewing-machine had been mounted. The hinged top swings over to double the table-top area, while the shelves which formerly held spools of thread, thimbles, etc., are ideal for extra reels, camera spools, and all the odds and ends accumulated by the zealous editor.

Above: Mr. Moosman at work on The Great American Film. Below: the custom-built cabinet closed and ready to act as a lamp-table or as a stand for the owner's movie screen

MOTION PICTURES

In Industry

Executives Address Sales Meetings via Sound Movies

UNTIL 1938 John Morrell & Company, food packers, had always sent their executives to the firm's annual district sales meetings throughout the country, but because a new merchandising sales plan was to be inaugurated this year, it was decided to send sound movies instead.

The company was convinced that on four counts the motion picture would prove superior to the plan previously employed. A good sound film properly used would be less expensive than sending executives around the country, it would give the executives' speeches, a product story, and a merchandising story at the same time, it would both present and demonstrate the new merchandising policy in a most effective manner, and it would introduce a novel and interesting factor to the annual sales convention.

Therefore, the Chicago Film Laboratory, Inc., was authorized to produce two two-reel pictures, one presenting Henry T. Foster, president of John Morrell & Company, in a summary of the past year's business, plus a fifteen-minute trip through Morrell's sanitary packing plants, and the second featuring a sales training story based on the contrast between the old-time packer salesmen's methods and the modern trend. It is in the second film that the new merchandising policy is effectively demonstrated, and for this picture the Chicago Film Laboratory constructed in its Chicago studios a completely equipped, up-to-date 30 by 40-foot grocery and meat market. Both pictures were photographed with Bell & Howell professional cameras.

Filmosound 138's presented these two films at all of Morrell's District Sales Meetings, and also to their many jobbers and even to retail associations. The Morrell sales force voted this year's sales conference as the most interesting meeting ever held,

and the company has received from outside sources more requests for the film than it is able to handle.

Filmosound Encourages Better Farming

★ A recent survey disclosed the distressing fact that due to inefficient farming methods, the hard working farmers in certain counties of West Virginia were averaging only about \$100 clear from a year of toil. The Upper Monongahela Association was formed to do something about the situation, and motion pictures were immediately selected as the best educational medium.

A small motor truck was equipped with a Filmosound 120, a 3000-watt generator, turntable, microphone, and a screen. With films obtained from the United States Department of Agriculture and from the University of West Virginia's College of Agriculture, a farming expert takes the traveling "ag. school" into the less progressive communities and visually shows the farmers how their work can be done more easily and profitably. When silent films are shown, the agricultural expert lectures with them, using the microphone and the Filmosound as a public address system. Some entertainment subject is also usually shown, to round out the evening's program.

The Upper Monogahela Association has found the plan to be so productive that even now they have under way a film project of their own, a film to be made in the very community where it will be shown, one which will show the local inhabitants that what their neighbors have done, they also can accomplish.

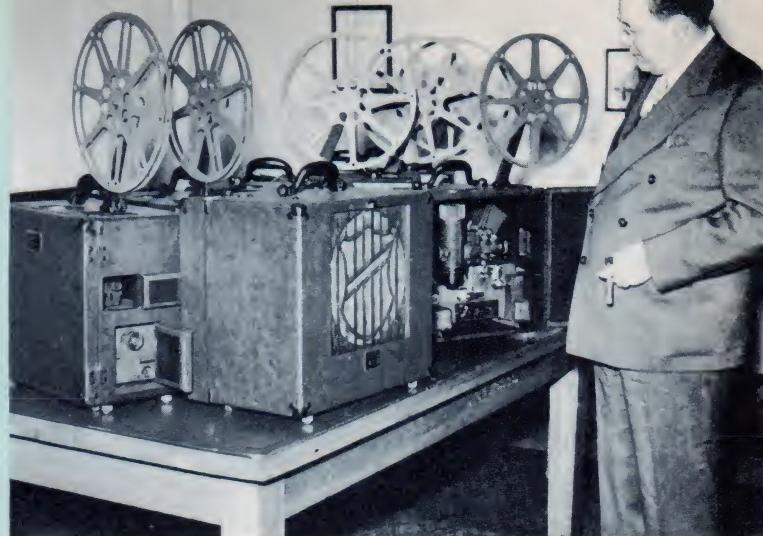


Photo by J. G. Kretschmer

E. C. Schmidt, Assistant to the President, Union Pacific Railroad Company, casts an approving eye on a few of the Filmosounds recently purchased to help "sell" Sun Valley

Filmosounds Advertise Sun Valley

★ Few had heard of Sun Valley, Idaho, before the Union Pacific Railroad discovered that here was one place in America that combined deep snows all winter with the mild, winter-sports climate that has made St. Moritz famous. The railroad company started from scratch to build up Sun Valley as a winter and summer resort, and has just purchased Filmosounds 138-J from dealer J. G. Kretschmer & Company, Omaha, to augment its publicity campaign for this and other recreation centers served by its lines.

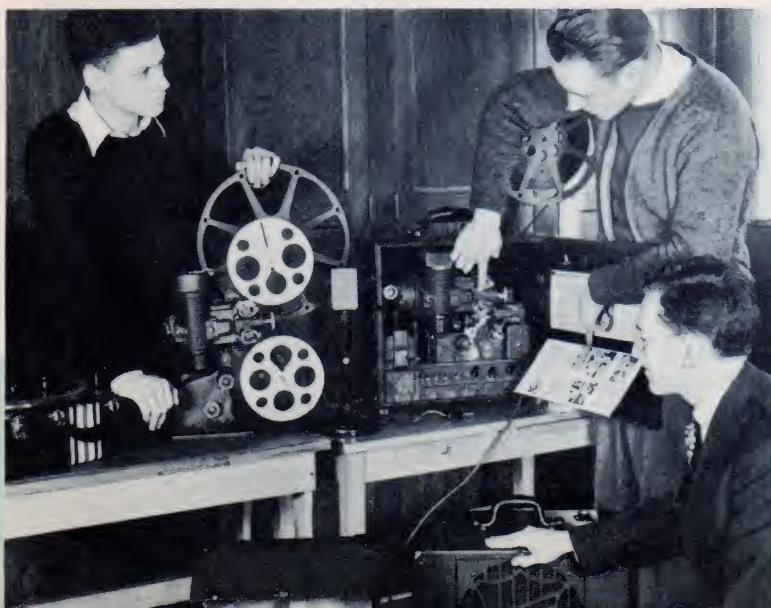
In Education

Filmosound is Versatile at Hobart College

AT Hobart College, Geneva, New York, a program of education for responsible citizenship is under way, and among the new courses is one dealing with the problems of war and peace. Motion pictures form one of the bases of that course, and Hobart purchased a Filmosound 120 with which to show the many film indictments against war.

Other Hobart departments were quick to see the advantages of motion pictures. The Department of Languages has stirred up interest to the point where a foreign language film club has been organized and several feature films in French and German presented.

The Department of Economics sponsors documentary films and pictures showing the development of the country's major industries. The Department of Athletics makes movies of varsity contests, and uses the Model 120 as a silent projector to show them for coaching and for entertainment.



Hobart College uses the Filmosound 120 and a silent Filmo JJ Projector in classes in civics, economics, languages, and athletics

Take Movies at Night

Continued from page 4

More than one flare can be used, of course, but more than two will be difficult to handle. It is better to increase the efficiency of one or two flares (50% to 100%) by placing reflectors behind them. A large tin dishpan purchased from the 10c store will do very well. Place it about a foot back of the flare. Flares create intense heat in their immediate proximity, and nothing valuable should be placed within three or four feet of them, nor should they ever be held in the hand. It is better to work with the camera on a tripod in this type of night photography, for after you have determined your field, you may set the camera in that position once and for all; in fact, you may even determine a second field which is to be photographed simply by swinging the camera on the tripod after the first scene is completed. Unless there is some good reason for placing the flare in front of the camera, such as the camp-fire set-up described above, it is better to have the flares back and to one side of the camera. This removes all possibility of fogging the film, and the smoke problem is more easily controlled.

The photo flare will die out at a rate which makes a splendid fade, so you should count on having your camera in operation as the flare dies down. In the case of the camp-fire scene, such a fade is especially effective, for nothing is left visible save the flickering flames of the fire. This makes a splendid ending for any out-of-doors picture.

Making Big Pictures of Small Subjects

Continued from page 3

plementary lens is needed if you have a definite field in mind.

With "W" indicating the width of the photograph on the film, "F" the focal length of the camera lens, "T" the width of the field, and "D" the distance from the supplementary lens to the subject, W is to F as T is to D. On Filmo 8 mm. equipment the dimension "W" is .173 inch, while on Filmo 16 mm. equipment it is .376 inch. The focal length of the standard lens of the Filmo 8 mm. Camera is $\frac{1}{2}$ inch, while for Filmo 16 mm. Cameras it is 1 inch. Thus you may make either "T" or "D" the unknown, and work it out as you please. As an example, suppose you are using a Filmo Double Eight and wish to focus on a field only $4\frac{1}{2}$ inches wide, just about the right size to permit a large butterfly to fill the picture. What you want to know is how far the subject must be from the lens and what supplementary lens you must use. The formula becomes:

$$\frac{.173}{.5} = \frac{4.5}{D} \text{ inches}$$

.173 D = 2.25 inches

D = 13 inches

Thus you find that dimension "D" is 13 inches, and you have noted that a three-diopter lens focuses on a point 13.12 inches distant, which is exact enough. Therefore, place a three-diopter lens in front of the 12 $\frac{1}{2}$ mm. universal focus lens of the Double Eight, place the butterfly 13 inches from this second lens, and you may be confident of sharp focus.

If the camera is equipped with a focusing mount lens which, however, cannot be focused down to the short distance desired, a supplementary lens may be used in the regular way simply by focusing the camera lens on infinity. Also, camera lenses of focal lengths other than the standard 1 inch for 16 mm. and 12 $\frac{1}{2}$ mm. for 8 mm. may be used. Simply focus them at infinity and proceed as before, but for alignment purposes be sure to use the correct viewfinder objective or mask for the lens that is in place. When telephoto lenses are used thus, the focal length of the supplementary lens still applies, but the field will be smaller, and since this small field is enlarged to fill the same screen, greater magnification results.

Supplementary lenses do not affect the exposure required for the picture, but here again, do not forget that close-ups usually require more light than other shots made under the same lighting conditions. We recommend the use of a good exposure meter whether the illumination be artificial or natural sunlight. So much depends upon the kind of film, the nature of the subject, the number of photoflood lamps, and the distance between these lamps and the subject, that it is impossible to generalize on exposure advice. A good meter, carefully used, will be of great assistance, and since this type of cinematography is somewhat out of the ordinary, it would not be amiss to do some experimenting preliminary to the exposure of a lot of film footage.

Parallax

Regardless of the method of focusing upon very short distances, there is one other factor which must be considered—correction for parallax. Parallax is the term designating the difference in position between the viewfinder lens and the camera lens. When you are photographing a field 3 or 4 feet or more in width, this very small figure is of no consequence and may be ignored, but when close-ups are to be made, it is very important that this distance be taken into consideration.

After the subject is properly centered in the viewfinder, the camera should be so moved as to place the photographic lens in the position which was held by the viewfinder at the time you centered the subject. In this way you can be sure that you are not cutting off the top or one side of your subject. The degree of parallax varies with the different models, and the following table will enable you to correct for this off-set on your own particular Filmo.

FILMO CAMERA	Location of <i>finder</i> with respect to <i>lens</i> , considered from operator's position behind the camera
8 mm.	1 $\frac{5}{16}$ inch above, 2 $\frac{1}{2}$ inch to the right
70	On the same horizontal plane, but 1 $\frac{1}{4}$ inches to the left
141	1 $\frac{1}{2}$ inches above, $\frac{5}{8}$ inch to the right
waist level	1 $\frac{1}{2}$ inches above, 1 inch to the right
121	eye level 1 $\frac{15}{32}$ inches above, on the same vertical plane

In some cases it will be found easier to move the subject than the camera, and in that case the movement is, of course, in the opposite direction. For example, the Filmo 70 should be moved 1 $\frac{1}{4}$ inches to the left, to put the camera lens where the viewfinder lens was when the object was centered, but if the subject is to be moved, it should be placed 1 $\frac{1}{4}$ inches to the right, after centering, to be directly in front of the camera lens.

However you decide to do it, we know you will enjoy making big ones out of little ones, and we are dead certain that your audiences will regard your photography with new respect.

Missing Equipment

* The equipment identified by the serial numbers listed below is missing. Information as to its location will be welcomed by the owners, who may be reached by addressing the Bell & Howell Company, 1842 Larchmont Ave., Chicago, and stating the serial number of the missing unit which has come to your attention.

Filmo 8 mm. Cameras

167,209	191,125	212,719
179,231	191,178	215,901
181,453	205,751	216,245
185,369	205,893	216,482
186,117	211,168	220,882
190,633	211,642	221,733
191,030	211,798	221,994

Filmo 70 Cameras

61,494	158,688	179,114
158,685	168,093	

Filmo 75 Camera

172,270

Filmo 121 Cameras

174,565	182,890	191,999	215,088
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Eyemo Cameras

B-1594	194,831
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Filmo 8 mm. Projectors

173,388	193,654	218,710
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Filmo 16 mm. Projectors

47,676	148,129	160,117
54,277	150,448	160,629

172,036

Filmosound Projectors

159,933	161,565
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TAYLOR-HOBSON LENS PRICES REDUCED

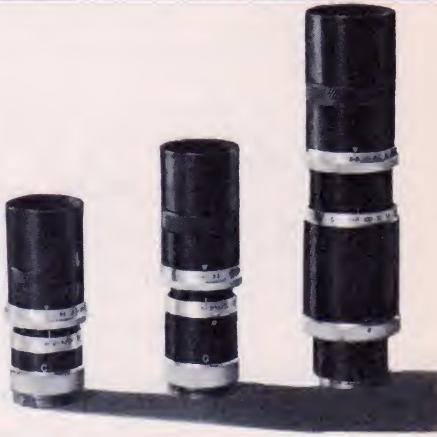
New low prices on the most famous of all lenses come just at the right time for summer filming, with autumn sports hard by

Special Purpose Lenses for 16 mm. Filmos

Your Filmo Camera becomes almost professional in the effects it will achieve with a telephoto lens or two. Fill the screen with a single flower—make personal, candid shots at a distance—film furtive wild life, close-ups of far-off landscapes. And at the big game in November, a 4-inch or a 6-inch lens will single out your own team even though you are at the top of the stadium.

Taylor-Hobson lenses are the choice of professional cameramen the world over—they are unsurpassed for either color or black-and-white film. The wide-angle and ultra fast lenses, as well as the telephotos, are reduced in price.

15 mm. F 2.5 universal focus.....	\$51.00	3-inch F 4 in focusing mount.....	\$82.00
15 mm. F 2.5 in focusing mount.....	64.50	4-inch F 4.5 in focusing mount.....	85.00
1-inch F 1.5 in focusing mount.....	85.00	6-inch F 4.5 in focusing mount.....	117.00
2-inch F 3.5 in focusing mount.....	64.50	6-inch F 5.5 in focusing mount.....	85.00



Telephoto Lenses for Filmo Eights

A telephoto lens on the Filmo 8 permits you to get those detailed close-ups of distant subjects that are so interesting, yet are too small for the regular lens. Illustrated are the 1-inch F 1.5 focusing mount lens, combining great speed with telephoto properties, since it gives twice the magnification of the standard 12½ mm. lens; the 1-inch F 2.7 universal and focusing mount lenses, also giving double magnification; the 1½-inch F 3.5 lens, which gives three-times magnification.

The focusing lenses work just as well at short range as in long distance filming; the 1½-inch lens, for example, has a field only 3¼ inches wide at 2 feet, just right for highly magnified pictures of small objects, such as butterflies, etc.

1-inch F 2.7 universal.....	\$34.00	1½-inch F 3.5 in focusing mount.....	\$64.50
1-inch F 2.7 in focusing mount.....	51.00	1½-inch F 3.5 B&H Telate lens, focusing.....	51.00
1-inch F 1.5 in focusing mount.....	85.00		



For Perfect Exposures . . . the new Weston Meter

Weston's new low-price, simplified meter banishes forever all exposure problems. Just point the meter at your subject and the photronic cell tells you how to set the lens. For black-and-white or Kodachrome film in movie or still cameras. No batteries to renew. Small and compact, fits the vest pocket. Price..... \$15.50



Night Movies with Photo Flares

At camp, on the trail, in the woods—any place out of doors where electric power is not available—splendid movies may be made by the light of Meteor Photo Flares. Safe, efficient, easy to use. Cannot ignite until fuse is lighted. Light is correct for black-and-white and regular Kodachrome film, and of sufficient intensity to render fast lenses unnecessary.

	Each	Dozen
½ minute.....	\$0.90	\$10.00
1 minute.....	1.75	20.00
2 minute.....	3.50	40.00
3 minute.....	4.75	55.00
4 minute.....	6.25	75.00
For electrical ignition add, each.....		\$0.25

For Better Continuity . . . Title-Craft Titles

Title the vacation pictures you are making this summer. Every film should have at least a few titles telling the "when, where, who, and what" facts about the picture. Dates are soon forgotten and just as soon, become important. Title-Craft Titles are professional in every respect, requiring no refocusing. Available on backgrounds appropriate to practically every occasion or reason for making movies. Send for our folder illustrating the 79 different backgrounds and three type styles.



For Steady Pictures . . . A B&H Tripod

Movies as smooth and steady as in a theater are yours with a B&H All-Metal Tripod. As light and compact as it is possible to make a strong, rigid support. Telescoping legs are equipped with non-spread chain guards. Spirit level assures quick, correct set-up. Pan and tilt head swings smoothly in any plane. Lock control on both pan and tilt movements. Length over all, fully extended, 56½ in. Folded length over all, 33 in. Price..... \$27.50



New 1200-Watt Lamp

The new 1200-watt "Clearay" projection lamp, for Filmo Model 130 Projectors only (sound or silent), offers more brilliant illumination than is available in any 16 mm. projector other than the Filmoarc. Giving 45% more light than the 1000-watt lamp, it is ideal for long throws and large screens. Schools and lecturers will find new power in their 130's when this new lamp is used. Tungsten collector plates minimize the formation of black deposit on the inner surface of the glass, thus assuring maximum efficiency and longevity. Price..... \$12.00

Bell & Howell Company
1842 Larchmont Ave., Chicago
New York, Hollywood, London

Questions and Answers

What Lenses Shall I Buy?

Q. What would you consider the most practical trio of lenses for me to use on my Filmo 70-D?

A. That is a question we are often asked, but which we cannot answer with generally applicable advice. It all depends on the sort of pictures you want to make and on the conditions under which you work.

One favorite combination includes 15 mm., 1-inch, and 2-inch lenses. If you are going to do a great deal of work indoors, by all means consider the 15 mm. wide angle lens. When working in the house, it is vastly important that you be able to include a fairly large field at close range, and this lens permits you to do just that. The 1-inch lens can be either an F 1.5 or an F 2.7, with the preference perhaps given the faster lens because you already have an F 2.5 lens in the wide angle optic. You will use the 1-inch lens for most of your general out-of-door shooting, although the 15 mm. lens sometimes proves invaluable there as well as in the house. The 2-inch lens has twice the magnifying power of the 1-inch lens, and is splendid for bringing "close" to the camera objects in the middle distance.

Another combination many of our owners swear by consists of 1-inch, 2-inch, and 4-inch lenses. The 4-inch lens has four times the magnifying power of the 1-inch, and is excellent for making pictures of wild birds, animals, and other subjects which cannot be approached. Many of the football coaching movies, which are almost always taken from the top of a high stadium, are made with a 4-inch lens.

It is pertinent to note that all lenses of either one of these two suggested combinations may be left on the turret of the Filmo 70-D without interfering with the fields of any of the others. You are by no means limited to these two selections, for you may work out your own set from the list of 15 mm., 1-inch, 2-inch, 3-inch, 4-inch, and 6-inch lenses. However, it should be remembered that some of the longer telephoto lenses will slightly vignette a corner of the field of some of the shorter lenses if the longer units are left in place on the turret while the shorter one is in use.

For Filmo Double Eights, the ideal combination is a 12½ mm., a 1-inch, and a 1½-inch lens. The 1-inch F 1.5 is particularly suitable here, for it gives the dual advantage of great speed combined with telephoto properties.

Sound Projector from Silent

Q. Can I have my Filmo 16 mm. Projector converted to show sound pictures?

A. Long ago the Bell & Howell Company gave serious consideration to the idea of providing sound adaptations for the thousands of Filmo Projectors in the field, and

also to the advisability of producing a "convertible" projector definitely designed for a subsequent sound conversion. However, our research engineers brought to light so many objections to both ideas that we have no thought of supplying either type of equipment at present.

The silent Filmo Projector is designed to operate at a speed of 16 frames per second, and the governor controlling that speed is as efficient and accurate as it is possible to make. Sound film must flow through the machine at the rate of 24 frames per second, and you will see immediately that complications arise in attempting to operate the projector efficiently at a rate half again as fast as that for which it was designed. It is never economical to overtax any mechanism by giving it a task beyond its powers. In the Filmosound, the motor, intermittent mechanism, spring controls at the aperture, sprockets, gears, and other features are designed and built especially for the "heavy duty" of sound speed, as well as for silent.

We are all agreed that a motor car built to cruise comfortably at 80 miles an hour would not function well at 120 miles per hour. Similarly, we do not hook a sound drum, exciter lamp, etc., to a silent projector and ask it to provide good sound.

As for building a projector for sound, leaving off the sound units, and selling it as a silent job to be "converted" later, such procedure would add greatly to the cost. We believe that you, the buyer, would be the first to object.

Secondly, and most important to you, we do not think it fair to ask you to buy a "convertible" machine today, a projector designed according to present sound standards, when a year or two from now you would want a sound projector in which would be incorporated all of the latest improvements and developments in the sound field at that time. There is little point in limiting yourself, a year or two hence, to the developments of today. Such great strides are being made constantly in this field that we believe the owner of a Filmosound should benefit by the very latest research and discoveries.

Projector Lamp Life

Q. Will you please settle once and for all the question as to how long a projection lamp should last?

A. There is no definite guarantee on the life of projection lamps, but the manufacturer states that when properly used, the lamps should burn for at least 25 hours. The term "properly used" covers the voltage load given the lamp. Voltage refers to the "pressure" of the electric current furnished by your local power company, and if you own a Filmo 8 mm. Projector or a 16 mm. machine not equipped with variable resistance and voltmeter, you should

order lamps of a voltage at least equal to that of your local line current. In other words, your lamps should be able to take the "pressure" of the power line. If the voltage of the line is greater than that of the lamp, the lamp is said to be "overloaded" and its life is considerably shortened. However, the illumination is greatly increased, and many owners take advantage of this fact when, for special purposes, they have occasion to make long throws on extremely large screens. They deliberately overload the lamp to secure abnormal brilliance, knowing full well that lamp life is being sacrificed.

It works the other way, as well, for if you use a 120-volt lamp on a line current of 110 volts, for example, your lamp life will be greatly lengthened, but you will not get so much illumination as you would were you using the 110-volt lamp. Here in America we are fortunate, for most electricity is supplied the country over in 110-, 115-, or 120-volt current. In Europe it varies from 105 to 250 volts, depending upon the country and the locality, and the lamp problem is terrific.

Owners of Filmo Projectors equipped with the variable resistance and voltmeter should always order 100-volt lamps regardless of the local current, and after the lamp switch is turned on, the resistance lever should be advanced until the needle on the dial shows the lamp to be receiving its rated load of 100 volts. Advancing the lever beyond this position overloads the lamp, and retarding the lever results in an underload. In many cases sufficient illumination will be obtained below the 100-volt mark. For example, a 750-watt, 100-volt lamp burned at 93 volts will give as much light as a 500-watt lamp at 100 volts, and it will last three times as long!

Do not confuse voltage with wattage. Wattage refers to the amount of illumination a lamp will give when burning at its rated voltage. Your Filmo Projector was designed for a lamp of a certain maximum wattage, and although it will use lamps of wattages lower than this maximum, there isn't much point in using less than a 750-watt lamp in the variable resistance machines, because the rheostat permits illumination to be decreased at will.

If you have conformed to the above instructions, and still feel that your lamp has given less than about 25 hours of service, we can send it to the manufacturer for you for a possible adjustment.

Red Filter

Q. With what types of film shall I use my red filter to best advantage?

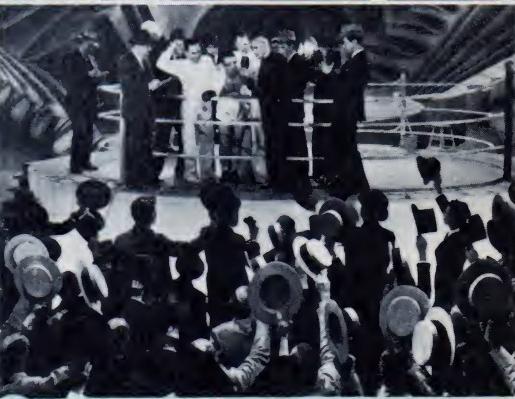
A. Use the red filter only with panchromatic and supersensitive panchromatic films. It is much more specialized than the amber filter and more care should be exercised in its use. Consider its factor as P-6x or P-8x and do some experimenting. Use the red filter when you want to exaggerate, when you want blue skies to appear very dark, when you want to simulate night scenes or storms. Never use it with orthochromatic film.



James Cagney in "Great Guy"
Conrad Nagel in "Bank Alarm"



Tense scene from "White Legion"
Scene from "The Gold Racket"



Bruce Cabot in "Love Takes Flight"
Elaborate scene from "Hats Off"

More New Hollywood Films for Filmosound Library

Grand National follows Universal, making 36 feature-length photoplays available to 16 mm. sound-on-film projector users, through Bell & Howell exclusively

ONE after another the world's film producers are permitting their late releases to be rented in the 16 mm. size, through B&H Filmosound Library. Now Grand National has taken this significant step, and 36 additional feature films, all carefully selected for non-theatrical showing, are made available to 16 mm. sound-on-film projector users.

Your home, church, school, or club talkie program may now be selected from more than 250 feature-length films and many hundreds of short subjects of almost every conceivable type. These films are the product of Universal, Grand National, Gaumont British, RKO, M.G.M., and a number of independent producers in the United States and abroad. A partial list of the new Grand National releases:

Social Drama

Great Guy. Scholastic Magazine writes: "Students will find this worth seeing as a study in corruption which often infests city government." James Cagney is starred.

Two Who Dared. The colorful life of Tsarist Russia. With Anna Sten.

Girl Loves Boy. Human drama treating small town life sympathetically.

Small Town Boy. Praised by reviewers as an unsophisticated comedy suitable for the

whole family. Background of World War training camp.

Occupational Background

White Legion. Scientists fight the yellow fever germ . . . a dramatic tale well correlated with Panama Canal background.

Love Takes Flight. Romance against a backdrop picturing both aviation and movie-making.

Federal Under-Cover-Man Thrillers

Bank Alarm, *Yellow Cargo*, *Navy Spy*, and *Cold Racket*—four mystery melodramas starring Conrad Nagel. Thrills and laughs aplenty.

Musicals

Hats Off. Lively musical. Story deals with rival cities putting on "World's Fairs."

Sweetheart of the Navy. Fun and music in a naval base town.

Devil on Horseback. Colorful Mexican musical melodrama. Lili Damita.

Outdoor Adventure

Captain Calamity. South Sea drama, rich in scenery and local customs, and with adventure, comedy, and good songs.

We're in the Legion Now. Tribulations of two American gangsters who try to reform, end up in the Foreign Legion.

Killers of the Sea. Shark hunting in the Gulf of Mexico with Capt. Wallace Caswell. Narration by Lowell Thomas.

Musical Westerns

Arizona Days.

Trouble in Texas.

Riders of the Rockies.

Headin' for the Rio Grande.

Song of the Gringo.

Mystery of the Hooded Horsemen.

Hittin' the Trail.

Sing, Cowboy, Sing.

Eight song-studded Westerns featuring Tex Ritter, singer of cowboy ballads.

New Ken Maynard Westerns

Boots of Destiny and *Trailin' Trouble*—two of the newest Westerns by this top-ranking star.

These films, and hundreds of others, are immediately available at moderate rentals.

Send for Complete Sound Film Catalogs

Users of 16 mm. sound film projectors will find Filmosound Library catalogs most helpful in arranging programs. Each film is briefly reviewed, and keyed as to types of audience for which it is suitable. Running time and rental rate are stated. Send the coupon for your copy today. No obligation.

Bell & Howell Company
1842 Larchmont Avenue, Chicago, Illinois

Please send me catalogs on Filmosound Library releases.

Name _____

Address _____

City _____ State _____

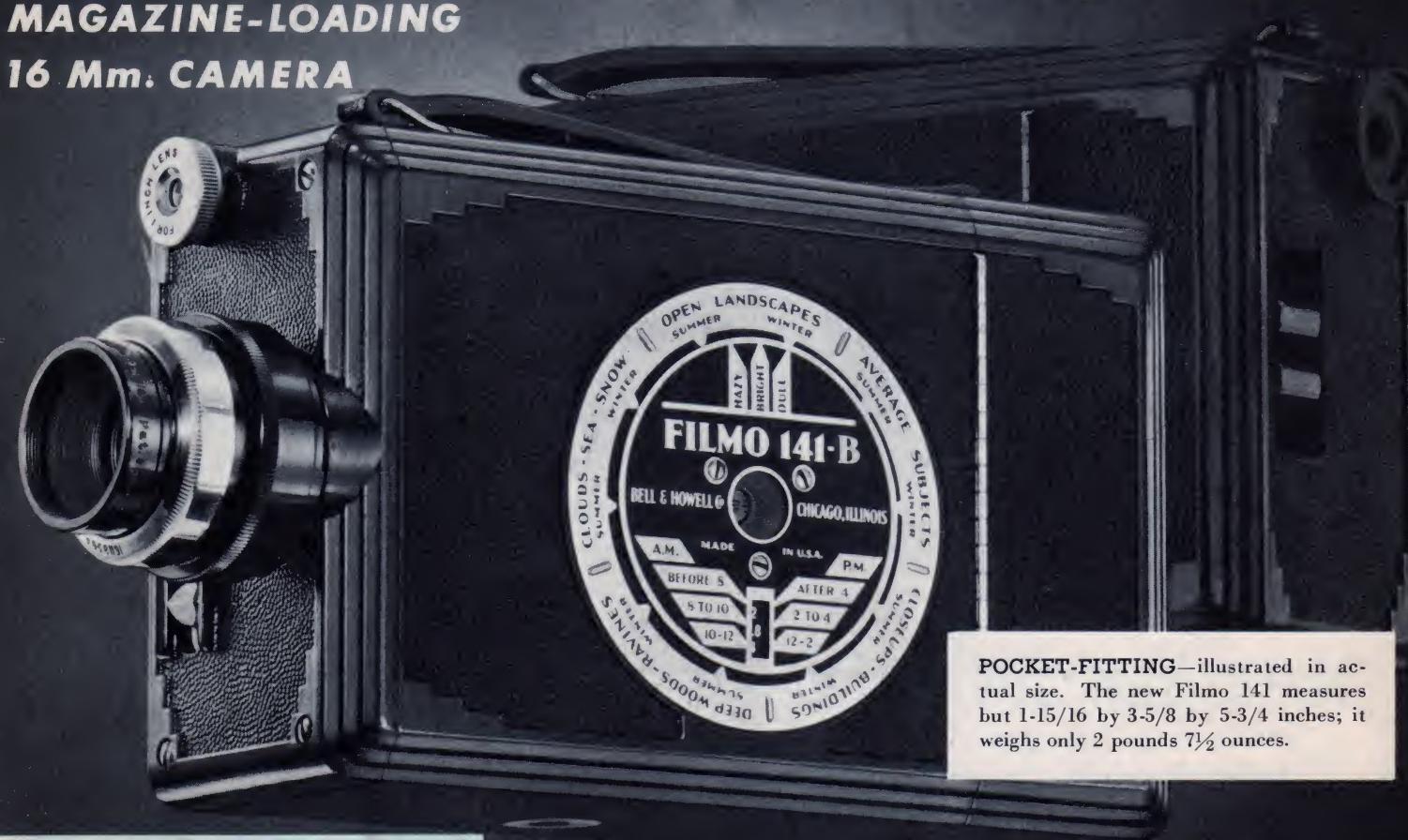
My 16 mm. sound-on-film projector is a

Make _____ Serial No. _____

BELL & HOWELL

ANNOUNCING... NEW FILMO 141

MAGAZINE-LOADING
16 Mm. CAMERA



POCKET-FITTING—illustrated in actual size. The new Filmo 141 measures but 1-15/16 by 3-5/8 by 5-3/4 inches; it weighs only 2 pounds 7½ ounces.

WITH MANY NEW FEATURES



OPTIONAL SPECIAL-PURPOSE EQUIPMENT. The Filmo 141 lens is instantly interchangeable with extra special-purpose lenses—speed, wide-angle, and telephoto. Interchangeable viewfinder objectives are available to match the finder field to seven lens focal lengths. Convenient brown cowhide carrying case which accommodates camera, extra lenses, and extra film magazines is also available.



INSTANT LOADING. Just open the hinged door, insert film magazine, snap the door shut, and your Filmo 141 is loaded, ready to shoot. Interchange film at any time... a device built into the camera automatically operates the magazine shutter when loading and unloading to prevent fogging even a single frame of film. Filmo 141 uses the standard Kodak 50-foot 16 mm. film magazines, universally obtainable.

THIS newest Bell & Howell precision camera combines surprising simplicity with unusual versatility. Easy to use... easy to load—Filmo 141 is a camera worthy of the advanced movie-maker's preference. You can change from one type of film to another any time anywhere, without fogging a single frame! A special catch automatically opens and closes the magazine shutter over the film aperture when inserting or removing the film cartridge. In addition, a dial indicator on the magazine, visible both in and out of the camera, registers the footage of unexposed film.

The original B & H "what you see, you get" viewfinder is perpetuated in this new Model 141 in a refined form, incorporating an important new feature, "Projected Area." This viewfinder permits no change of field if your eye moves from the center of the eyepiece. It gives a greater magnification of the image. It sharply defines the edges of the field of view. Extraneous light is excluded, and elements are protected from dirt and damage because this finder is built into the camera. The front element unscrews for interchange to match seven lens focal lengths.

FOUR OPERATING SPEEDS—your choice of two speed ranges: 8, 16, 24, and

32, or 16, 32, 48, and 64 frames per second—afford a valuable variety of intermediate speeds in addition to either slow-motion or half speed.

SINGLE-FRAME EXPOSURE device permits interesting animation work of all kinds.

Filmo 141 employs the same lens mount as the professionally-versatile Filmo 70 Cameras, facilitating the interchange of lenses. Built-in B & H exposure calculator gives detailed coverage of every outdoor daylight photographic condition. Permanently correct alignment of mechanical and optical components is assured by the rugged die-cast aluminum-alloy housing. Modern in design, with inset panels of hard rubber in pin seal leather embossing and with chromium fittings, Filmo 141 is as attractive as it is efficient.

Write for complete details or see it at your Filmo dealer's. Bell & Howell Company, Chicago, New York, Hollywood, London. *Established 1907.*

SEND COUPON FOR INFORMATION

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